

FULHAM CHURCH.



VIEW OF TOWER AS RESTORED.—MR. G. GODWIN, F.R.S., ARCHTCT.

AN IMPORTANT CASE IN BUILDING AND CONSTRUCTIVE CARPENTRY.

THE walls of a brick building of which the plan is 16 feet by 34 feet, are respectively 12 and 15 feet in height, the front wall being 3 feet higher than the back one, and the thickness of each 15 inches. The rafters which rest upon the back wall are 13 feet long, while those that rest upon the front wall are of such a length as to give both sides of the roof the same inclination or slope; the rafters are sixteen in number on each side, with a scantling of 6 inches by 2½ inches of Mar forest fir, the laths being of the same material. The roof is covered with plain tiles five-eighths of an inch in thickness, and over-

* See p. 49 in present number.

lapping one another half their length, thereby giving a double thickness to the covering, and making together with the laths and rafters, a weight of not less than 15 lbs. on a square foot of surface. The rafters are tied together by joists or tie-beams on a level with the summit of the higher wall, but in consequence of there being no other ties, the feet of the longer rafters have been allowed to slip outwards, and force the back wall from the perpendicular through a space of 3 inches; and in order to prevent a farther deviation from the upright position, it is proposed to shore up the building with timber struts of 12½ feet in length; at what point of height in the wall must the struts be placed, so that they may offer the greatest possible resistance in a direction parallel to the horizon?

Such are the particulars of the data as they

have been received, and such is the question proposed to be resolved, and to this extent the solution is simple enough; but there are other circumstances of a more prolix and difficult character connected with it, to which we think proper to direct the reader's attention, as having reference to a case of very frequent occurrence in practice, but for which we are not aware that any general rule has been given to guide the mechanic in the proper adjustment of the system; we allude to the determination of the shorter rafter when the longer one is known, so that the slope or inclination of the roof may be the same on both sides, the angle made by the concurrence of the rafters being then bisected by a plummet suspended from the ridge.

Let FE fig 1, represent the width of the building; AI equal FE the span of the roof;